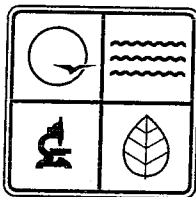


STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION



PERMIT BOOK

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **032006-013** Project Number: **2005-11-004**

Owner: **Ozark Hardwood Products, LLC**

Owner's Address: **P.O. Box 748, Marshfield, MO 65706**

Installation Name: **Ozark Hardwood Products, LLC**

Installation Address: **Southwest AB & C Highway, Seymour, MO 65746**

Location Information: **Webster County, S36, T29N, R17W**

Application for Authority to Construct was made for:

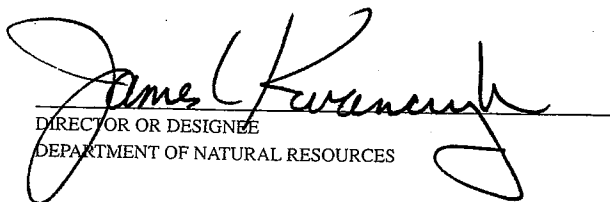
Installation of a wood pellet mill. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

☐ Standard Conditions (on reverse) are applicable to this permit.

☒ Standard Conditions (on reverse) and Special Conditions (listed as attachments starting on page 2) are applicable to this permit.

MAR 22 2006

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional Office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed Special Conditions as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

Page No.	2
Permit No.	
Project No.	2005-11-004

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Ozark Hardwood Products, LLC
Webster County, S36, T29N, R17W

1. Emission Limitations
 - A. Ozark Hardwood Products, LLC shall emit less than 15 tons of particulate matter less than ten (10) microns in diameter (PM₁₀) in any consecutive 12 month period from the entire installation.
 - B. Ozark Hardwood Products, LLC shall emit less than 40 tons of nitrogen oxides (NO_x) in any consecutive 12 month period from the entire installation.
 - C. Ozark Hardwood Products, LLC shall maintain an accurate record of PM₁₀ and NO_x emitted into the atmosphere from the entire installation. Attachment A and Attachment B or an equivalent form shall be used for this purpose. Ozark Hardwood Products, LLC shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - D. Ozark Hardwood Products, LLC shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1.C indicate that the source exceeds the limitation of Special Condition Number 1.A or 1.B.
2. Haul Roads
 - A. Ozark Hardwood Products, LLC shall control fugitive dust from all haul roads at this site with materials such as asphalt, concrete, and/or other approved material(s). The pavement will be applied in accordance with industry standards for such pavement.
 - B. In lieu of pavement Ozark Hardwood Products, LLC shall control fugitive dust using water or surfactant spray consistently and correctly at all times to prevent visible fugitive emissions from entering the ambient air beyond the property boundary. The following conditions apply to haul road

Page No.	3
Permit No.	
Project No.	2005-11-004

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

watering:

1. The water application rate shall be 100 gallons per day per 1,000 square feet.
2. A quarter inch or more rainfall during the preceding 24 hours shall substitute for one (1) daily water application.
3. Water/surfactant applications shall be not be required when the ground is frozen or when there will be no traffic on the roads.

C. Ozark Hardwood Products, LLC shall keep the following records on file and available for inspection:

1. A daily log initialed by the responsible facility operator of roads watered and quantity of water/chemical application used, or notation that there was a quarter inch or greater rainfall within the past 24 hours or that the facility was not in operation.
2. Water tank size, total area of roads to be watered, and the resultant number of fills necessary to accomplish the required application rate.
3. Records of watering equipment breakdowns and repairs.

3. Cyclone Control

A. Ozark Hardwood Products, LLC shall use cyclones to control PM₁₀ emissions from emission points EP-05, EP-06, and EP-07, which include the following process units: Hammermill(s) (PU-01A/B), 45 MMBTU Rotary Drum Dryer (PU-03), 10 Ton Storage Bin (PU-04), Pellet Mill(s) (PU-05A/B/C), Enclosed Drag Belts (PU-02), and Pellet Cooler (PU-06) as specified in the permit application.

B. The cyclones must be in use at all times when this plant is in operation and shall be operated and maintained in accordance with the manufacturer specifications.

C. Ozark Hardwood Products, LLC shall maintain an operating and maintenance log for the cyclones that shall include the following:

- 1) Incidents of malfunction: with impact on emissions, duration of event, probable cause, and corrective actions.
- 2) Maintenance activities: with inspection schedule, repair actions and replacements, etc.

4. Rotary Drum Dryer and Cyclone (EP-06)

A. The 45 MMBTU dual-fuel drum dryer shall combust propane and/or sawdust exclusively.

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Permit No.	
Project No.	2005-11-004

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. Ozark Hardwood Products, LLC shall verify through emission testing the following emission rates for the drum dryer using sawdust as the primary fuel.
 1. PM₁₀ emission rate of 0.3845 pounds per ton of wood pellets produced (lbs/ton).
 2. NO_x emission rate of 0.4895 lbs/ton.
 - C. If test results exceed emission rates, a permit amendment is required within sixty (60) days.
5. Testing Requirements
- A. Within 60 days of achieving the maximum production rate of the process and in any case, no later than 180 days after initial startup. The emissions testing shall be conducted on EP-06 in order to quantify the PM₁₀ and NO_x emission rate from the operation of this unit including condensables, using sawdust as the primary fuel.
 - B. A completed Proposed Test Plan Form must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that this program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan must be approved by the Director prior to conducting the required emission testing.
 - C. Performance testing shall be conducted under the condition of maximum process/production rate, or within ten percent (10%) of this rated capacity, not to include periods of startup, shutdown, or malfunction. The process/production rate at which performance testing is conducted shall become the maximum process/production rate at which these emission sources are permitted to operate, under the authority granted by this permit.
 - D. Two (2) copies of a written report of the performance test results shall be submitted to the Director within 30-days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required EPA Method for at least one sample (1) run.
 - E. In place of the above required stack testing, Ozark Hardwood Products, LLC may also submit documentation from another stack test conducted on an identical rotary drum dryer/cyclone or similar unit if approved by the Director. If this alternative stack testing documentation is to be provided,

Page No.	5
Permit No.	
Project No.	2005-11-004

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

Ozark Hardwood Products, LLC shall submit the results of the testing within the time frames indicated above. This waiver of the above stack testing requirements is contingent upon acceptance and approval of the alternative stack testing documentation by the Director.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2005-11-004
Installation ID Number: 225-0040
Permit Number:

Ozark Hardwood Products, LLC
Southwest AB & C Highway
Seymour, MO 65746

Complete: November 1, 2005
Reviewed: January 18, 2006

Parent Company:
Ozark Hardwood Products, LLC
P.O. Box 748
Marshfield, MO 65706

Webster County, S36, T29N, R17W

REVIEW SUMMARY

- Ozark Hardwood Products, LLC has applied for authority to construct a wood pellet mill.
- Hazardous Air Pollutant (HAP) emissions are expected in insignificant amounts from the combustion of propane.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Cyclones are being used to control the particulate matter less than ten (10) microns in diameter (PM₁₀) emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ and nitrogen oxides (NO_x) are conditioned below de minimis levels.
- This installation is located in Webster County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was not performed since potential emissions of the application are conditioned below de minimis levels.

- Emissions testing is required for the drum dryer/cyclone (EP-06).
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

PROJECT DESCRIPTION

Ozark Hardwood Products, LLC is applying for the authority to construct a wood pellet mill on a greenfield site in Seymour, Missouri (Webster County). The new wood pellet mill will have a maximum hourly design rate (MHDR) of 19.3 tons of pellets per hour (tph) (NOTE: the production rate at which performance testing is conducted shall become the MHDR). There will be one 45 MMBTU dual-fueled (propane/sawdust) rotary drum dryer, two (2) hammermills each with a MHDR of 25 tph, three (3) pellet mills each with a MHDR of 12 tph, a pellet cooler, and a 10 ton storage bin. The second hammermill will be used in series with the first for sizing larger sawdust for use as fuel and/or product. The equipment emission points and process units, with associated control devices, are listed in the following table.

Table 1: Emission point descriptions and control device types.

Emission Point	Control Device	Control Device Type	Process Unit	Emission Units
EP-01	CD-01	Pavement/ Documented Watering	N/A	Haul Roads - Raw Material
EP-02A	CD-02	N/A ¹	N/A	Stock Piles - Load In
EP-02B			N/A	Stock Piles - Wind Erosion
EP-02C			N/A	Stock Piles - Vehicular Activity
EP-02D			N/A	Stock Piles - Load Out
EP-03	N/A	N/A	N/A	Feed Bin
EP-04	N/A	N/A	N/A	Open Belt Conveyor
EP-05	CD-03	Cyclone	PU-01A	Hammermill A
			PU-01B	Hammermill B ²
			PU-02 ³	Enclosed Drag Belts
EP-06	CD-04	Cyclone ⁴	PU-03	45 MMBTU Dryer (Propane/Sawdust)
			PU-02 ³	Enclosed Drag Belts
			PU-04	10 Ton Storage Bin
EP-07	CD-06	Cyclone	PU-05A	Pellet Mill A
			PU-05B	Pellet Mill B
			PU-05C	Pellet Mill C ²
			PU-02 ³	Enclosed Drag Belts
			PU-06	Pellet Cooler
EP-08	CD-01	Pavement	N/A	Haul Roads - Product

¹ Sawdust handling emissions are being controlled by natural moisture content of the saw dust (25-40%).

² Indicates future additions permitted herein.

³ Process Unit 2 (PU-02) represents different enclosed drag belts.

⁴ Cyclone efficiency will be included in the emission factor when stack test is performed on EP-06.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.5 *Liquified Petroleum Gas Combustion* (10/96), Section 13.2.2 *Unpaved Roads* (12/03), and Section 10.6.2 *Particleboard* (06/02). As this is a greenfield site no existing potential or actual emissions exist for the facility. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). Emission control efficiency used in the evaluation was 75% for cyclones. The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15	N/A	N/A	35.78	< 15.0
SO _x	40	N/A	N/A	0.00	N/A
NO _x	40	N/A	N/A	41.38	< 40.0
VOC	40	N/A	N/A	0.65	N/A
CO	100	N/A	N/A	6.97	N/A
HAPs	10.0/25.0	N/A	N/A	0.36	N/A

N/A = Not Applicable

Ozark Hardwood Products, LLC has submitted documentation from another stack test conducted on an “identical” dual-fuel (propane/sawdust) rotary drum dryer conducted in Pennsylvania. However, the specifics could not be validated with submitted documents so the test data could not be accepted. Therefore, stack testing will be required of EP-06 to verify emission rates.

For record keeping purposes a composite PM₁₀ emission factor was derived for the use of sawdust as the primary fuel for the rotary drum dryer. The composite emission factor is in pounds per ton of wood pellets produced (lbs/ton) and is comprised of two parts, EP-06 and the rest of the emission points (EP-01 through EP-05, EP-07, and EP-08). Together the two parts equal the composite emission factor. EP-06 is the results of the emissions test (lb/hr) divided by the production rate at the time of the test, yielding lbs/ton of pellets produced. The other portion, of the composite emission factor, is composed of the emission factors with associated control efficiencies summed up and totals 0.0387 lbs/ton of wood pellets produced. Together the PM₁₀ emission factor after testing is PM₁₀ (lbs/ton) = 0.0387 lbs/ton + (EP-06) lbs/ton.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ and NO_x are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

Ozark Hardwood Products, LLC shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110*
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin, 10 CSR 10-6.170*
- *Restriction of Emission of Visible Air Contaminants, 10 CSR 10-6.220*
- *Restriction of Emission of Odors, 10 CSR 10-3.090*

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes, 10 CSR 10-6.400*

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Michael Sanchez
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 31, 2005, received November 1, 2005, designating Ozark Hardwood Products, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southwest Regional Office Site Survey, dated November 21, 2005.

Attachment A– PM₁₀ Compliance Worksheet

Ozark Hardwood Products, LLC
 Webster County, S36, T29N, R17W
 Project Number: 2005-11-004
 Installation ID Number: 225-0040
 Permit Number: _____

This sheet covers from _____ (Month, Year) to _____ (Month, Year) (Copy this sheet as needed)

Month/ Year	Wood Pellets Produced Using Propane as primary fuel			Wood Pellets Produced Using Sawdust as primary fuel			Total PM ₁₀ Emissions ⁴ (lbs/month)	Total PM ₁₀ Emissions ⁵ (tons /month)	12-Month Rolling Total PM ₁₀ Emissions ⁶ (tons/year)
	Monthly Pellet Production ¹ (tons)	Emission Factor (lbs/ton)	Monthly PM ₁₀ Emissions ² (lbs/month)	Monthly Pellet Production ¹ (tons)	Emission Factor ³ (lbs/ton)	Monthly PM ₁₀ Emissions ² (lbs/month)			
		0.0542							
		0.0542							
		0.0542							
		0.0542							
		0.0542							
		0.0542							
		0.0542							
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		0.0542							

¹ Monthly pellet production is the amount of wood pellets produced using each specific fuel type during given month.

² Monthly emissions is calculated by multiplying the Monthly Pellet Production (tons) by the associated Emission Factor.

³ The PM₁₀ emission factor after testing is PM₁₀ (lbs/ton) = 0.0387 lbs/ton + (EP-06) lbs/ton.

⁴ Total PM₁₀ Emissions (lbs/month) is calculated by summing the Monthly PM₁₀ Emissions.

⁵ Multiply Total PM₁₀ Emissions (lbs/month) by 0.0005 to tons/month.

⁶ Sum of last 12-months of Column 3*.

***A 12-Month Total PM₁₀ emissions total of less than 15 tons indicates compliance.**

Attachment B– NO_x Compliance Worksheet

Ozark Hardwood Products, LLC
 Webster County, S36, T29N, R17W
 Project Number: 2005-11-004
 Installation ID Number: 225-0040
 Permit Number: _____

This sheet covers from _____ (Month, Year) to _____ (Month, Year) *(Copy this sheet as needed)*

Month/ Year	Wood Pellets Produced Using Propane as primary fuel			Wood Pellets Produced Using Sawdust as primary fuel			Total NO _x Emissions ⁴ (lbs/month)	Total NO _x Emissions ⁵ (tons /month)	12-Month Rolling Total NO _x Emissions ⁶ (tons/year)
	Monthly Pellet Production ¹ (tons)	Emission Factor (lbs/ton)	Monthly NO _x Emissions ² (lbs/month)	Monthly Pellet Production ¹ (tons)	Emission Factor ³ (lbs/ton)	Monthly NO _x Emissions ² (lbs/month)			
		0.4895							
		0.4895							
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		0.4895							
		0.4895							
		0.4895							

¹ Monthly pellet production is the amount of wood pellets produced using each specific fuel type during given month.

² Monthly emissions is calculated by multiplying the Monthly Pellet Production (tons) by the associated Emission Factor.

³ NO_x emission factor (lbs/ton) to be determined during stack test.

⁴ Total NO_x Emissions (lbs/month) is calculated by summing the Monthly NO_x Emissions.

⁵ Multiply Total NO_x Emissions (lbs/month) by 0.0005 to tons/month.

⁶ Sum of last 12-months of Column 3*.

***A 12-Month Total NO_x emissions total of less than 40 tons indicates compliance.**